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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Volker Thole

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7590

02/27/2009

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EXAMINER

THEODORE, MAGALI P

ART UNIT

PAPER NUMBER

1791

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<i>Office Action Summary</i>	Application No.	Applicant(s)	
	10/526,541	THOLE ET AL.	
	Examiner	Art Unit	
	Magali P. Théodore	1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 February 2009.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Applicant's amendment filed February 12, 2009 was received.
2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 12, 2009 has been entered.
3. The text of those sections of Title 35, U.S. Code not included in this action can be found in the preceding Office actions.

Claim Rejections - 35 USC § 112

4. Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "the dry method." There is insufficient antecedent basis for this limitation in the claim. Because it is not clear which methods are excluded by this limitation, the scope of the claim is unclear. For the sake of compact prosecution, the word "dry" has been interpreted in its broad sense as it is used in everyday language.

Claim Rejections - 35 USC § 103

5. Claims 1-10 and 13-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ljungbo (WO 92/04169 A1) in view of Gäth et al. (DE 1127270 A1) and Moyes et al. (US 2002/0100996). All references to Gäth et al. are to the translation provided.

Regarding claims 1-2, Ljungbo discloses providing wood fibers in an dry air stream (p 1 ¶ 2 ln 4-6), adding spray-dried sodium silicate water glass (p 3 example 1 ln 4) to wood fibers (p 2 ln 1) to form a mixture, forming a mat (cake, p 3 ln 9) and compressing that material and curing it in the closed press (p 3 example 1 ln 8-10). Ljungbo does not specify mixing or curing temperatures. However, Gäth et al. establish these as result-effective parameters by teaching that the mixing temperature determines the extent to which the water glass foams while mixing (p 4 ¶ 1 ln 6-8) and that the curing temperature should be set according to the water content of the mixture (p 4 ¶ 2 ln 7-9). Gäth teaches mixing below 140 °C, which encompasses the 30-95 °C range recited by claim 1 and the 40-75 °C range recited by claim 2. Gäth also teaches curing low-water mixtures above 170 °C, which falls within the range (greater than 80 °C) recited by the claim. Therefore it would have been obvious to one of ordinary skill in the art to optimize the mixing and curing temperatures in the method taught by Ljungbo because Gäth et al. establish these as result-effective parameters and teaches temperatures within the ranges recited by the claim. Optimizing a result-effective parameter known in the art does not impart patentable distinction to an invention. See MPEP 2144.05 [R-5] II, in re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Art Unit: 1791

Alternatively, it would have been obvious to one of ordinary skill in the art to use the claimed mixing and curing temperatures because the ranges taught by G  th et al. overlap or fall within the claimed ranges. In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. Cf. MPEP 2144.05[R-5] I.

Ljungbo does not specify the density of the mat after pressing. However, Moyes et al. teach compressing a fibrous nonwoven to a density of 350-600 kg/m³ to make an inexpensive yet effective core for a fire door (¶ 0021 ln 1-5) and compressing the same material to 900-1,300 kg/m³ to make fire-door support structures capable of holding threaded fasteners (¶ 0021 ln 5-10). Therefore it would have been obvious to one of ordinary skill in the art to compress the fibrous nonwoven taught by Ljungbo to densities ranging from 350 kg/m³ to 1,250 kg/m³ because Moyes et al. teach densities of 350 kg/m³ to 1,300 kg/m³ as required by the product's intended use.

Ljungbo does not teach adding the water glass either before or during defibering or into a transport element of the defibering apparatus. However, adding the water glass before, during or after defibering has not been shown to produce unexpected results. While Applicant's specification explains that the water glass does not lose efficacy from being added early in the process, it is not clear that there is any benefit, either. Therefore, it would have been obvious to one of ordinary skill in the art to add the water glass at any time. Unless it produces unexpected results, the order of the steps in a method and the order in which ingredients are added does not impart

Art Unit: 1791

patentable distinction to an invention. In re Gibson, 39 F.2d 975, 5 USPQ 230 (CCPA 1930)

Regarding claims 3-4, Ljungbo discloses providing wood fibers in an air stream (p 1 ¶ 2 ln 4-6), adding spray-dried sodium silicate water glass (p 3 example 1 ln 4) to wood fibers (p 2 ln 1), mixing them to form a fibrous nonwoven (cake, p 3 ln 9), and compressing that material and curing it in the closed press (p 3 example 1 ln 8-10).

Ljungbo does not teach the presence of water vapor in the mixing step. However, Ljungbo teaches controlling the moisture content of the wood fibers (p 3 example 1 ln 7 and p 3 example 2 ln 4-5). Adding steam hydrates the wood fibers, reversing the loss of moisture to the air stream which carries them. Therefore it would have been obvious to one of ordinary skill in the art to add steam the air stream taught by Ljungbo because Ljungbo teaches controlling the fibers' moisture content and steaming the fibers would maintain their humidity.

Ljungbo does not specify mixing or curing temperatures. However, Gäth et al. establish these as result-effective parameters by teaching that the mixing temperature determines the extent to which the water glass foams while mixing (p 4 ¶ 1 ln 6-8) and that the curing temperature should be set according to the water content of the mixture (p 4 ¶ 2 ln 7-9). Gäth teaches mixing below 140 °C, which falls within the 105-180 °C range recited by claim 1 and the 110-150 °C range recited by claim 2. Gäth also teaches curing low-water mixtures above 170 °C, which falls within the range (greater than 80 °C) recited by the claim. Therefore it would have been obvious to one of ordinary skill in the art to optimize the mixing and curing temperatures in the method

Art Unit: 1791

taught by Ljungbo because Gäth et al. establish these as result-effective parameters and teaches temperatures within the ranges recited by the claim. Optimizing a result-effective parameter known in the art does not impart patentable distinction to an invention. See MPEP 2144.05 [R-5] II, in re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). *Alternatively*, it would have been obvious to one of ordinary skill in the art to use the claimed mixing and curing temperatures because the ranges taught by Gäth et al. overlap or fall within the claimed ranges. In the case where the claimed ranges “overlap or lie inside ranges disclosed by the prior art” a prima facie case of obviousness exists. Cf. MPEP 2144.05[R-5] I. *Alternatively*, it would have been obvious to one of ordinary skill in the art to use the claimed mixing and curing temperatures because the ranges taught by Gäth et al. overlap or fall within the claimed ranges. In the case where the claimed ranges “overlap or lie inside ranges disclosed by the prior art” a prima facie case of obviousness exists. Cf. MPEP 2144.05[R-5] I.

Ljungbo does not specify the density of the fibrous nonwoven after pressing. However, Moyes et al. teach compressing a fibrous nonwoven to a density of 350-600 kg/m³ to make an inexpensive yet effective core for a fire door (§ 0021 ln 1-5) and compressing the same material to 900-1,300 kg/m³ to make fire-door support structures capable of holding threaded fasteners (§ 0021 ln 5-10). Therefore it would have been obvious to one of ordinary skill in the art to compress the fibrous nonwoven taught by Ljungbo to densities ranging from 350 kg/m³ to 1,250 kg/m³ because Moyes et al. teach densities of 350 kg/m³ to 1,300 kg/m³ as required by the product's intended use.

Regarding claim 5, Ljungbo discloses a mixture made from 100 parts wood fiber and 25 parts dry water glass, the wood fibers having a moisture content of 30 % prior to injection into the air stream (p 3 example 1 ln 3-7). If the ratio of water to dry fiber in the wood fiber is 70:30, then every 100 parts of wood brings with it 43 parts of water ($30 \times 100 \div 70 = 43$). Therefore, the mixture, which forms the mat has a moisture content less than 26 % ($43 / (100 + 25 + 43) = 26 \%$)--less than 26 % because, in the absence water vapor, water is lost to the air stream (p 3 example 1 ln 3) which carries the wood fibers. This upper limit differs from the 25 % limited recited by the claim by only one percentage point. Ljungbo also teaches varying the moisture content of the wood fibers in different applications of his invention (p 3 example 1 ln 7 and p 3 example 2 ln 4-5). Therefore it would have been obvious to one of ordinary skill in the art to vary the moisture content of the fibers such the moisture content of the mat is less than 25 % because Ljungbo teaches a fibrous nonwoven containing less than 26 % and Ljungbo teaches varying the moisture content of the fibers used in the mixture.

Regarding claim 6, Ljungbo teaches adding 25 parts water glass to 100 parts dry wood fibers; 25/125 is 20 % (p 3 ln 4-7).

Regarding claims 7, Ljungbo teaches adding all the water glass after the defibering process (p 3 example 1).

Regarding claim 8, Ljungbo does not teach adding the water glass either before or during defibering or into a transport element of the defibering apparatus. However, adding the water glass before, during or after defibering has not been shown to produce unexpected results. While Applicant's specification explains that the water glass does

Art Unit: 1791

not lose efficacy from being added early in the process, it is not clear that there is any benefit, either. Therefore, it would have been obvious to one of ordinary skill in the art to add the water glass at any time. Unless it produces unexpected results, the order of the steps in a method and the order in which ingredients are added does not impart patentable distinction to an invention. In re Gibson, 39 F.2d 975, 5 USPQ 230 (CCPA 1930)

Regarding claim 9, Ljungbo teaches using a silicate water glass (p 2 ¶ 3 ln 1) as in combination with a filler (p 3 last ¶ ln 1).

Regarding claim 10, Ljungbo teaches adding a hardener to the water glass before or after adding the wood fibers (p 2 ¶ 5).

Regarding claim 13, Ljungbo teaches adding 25 parts water glass to 100 parts dry wood fibers; 25/125 is 20 % (p 3 ln 4-7).

Regarding claim 14, Ljungbo discloses a mixture made from 100 parts wood fiber and 25 parts dry water glass, the wood fibers having a moisture content of 30 % prior to injection into the air stream (p 3 example 1 ln 3-7). If the ratio of water to dry fiber in the wood fiber is 70:30, then every 100 parts of wood brings with it 43 parts of water ($30 \times 100 \div 70 = 43$). Therefore, the mixture, which forms the mat has a moisture content of than 26 % ($43 / (100 + 25 + 43) = 26 \%$), which differs from the claimed upper limit by only 1 percentage point. Ljungbo also teaches varying the moisture content of the wood fibers in different applications of his invention (p 3 example 1 ln 7 and p 3 example 2 ln 4-5). Therefore it would have been obvious to one of ordinary skill in the art to vary the moisture content of the fibers such the moisture content of the mat is less

Art Unit: 1791

than 25 % because Ljungbo teaches a fibrous nonwoven containing 26 % and Ljungbo teaches varying the moisture content of the fibers used in the mixture.

Regarding claims 15-16, Ljungbo teaches adding 25 parts water glass to 100 parts dry wood fibers; 25/125 is 20 % (p 3 ln 4-7).

Regarding claims 17-18, Ljungbo teaches fir chips (p 3 ln 1). Ljungbo does not teach adding the water glass either before or during defibering or into a transport element of the defibering apparatus. However, adding the water glass before, during or after defibering has not been shown to produce unexpected results. While Applicant's specification explains that the water glass does not lose efficacy from being added early in the process, it is not clear that there is any benefit, either. Therefore, it would have been obvious to one of ordinary skill in the art to add the water glass at any time. Unless it produces unexpected results, the order of the steps in a method and the order in which ingredients are added does not impart patentable distinction to an invention. In re Gibson, 39 F.2d 975, 5 USPQ 230 (CCPA 1930).

Regarding claim 19, Ljungbo teaches using a silicate water glass (p 2 ¶ 3 ln 1) as in combination with a filler (p 3 last ¶ ln 1).

6. Claims 11-12 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ljungbo in view of Gäth et al. and Moyes et al. as applied to claims 3 and 10 above and further in view of Nürnberger et al. All references to Nürnberger et al. (DE 19500653 A1) are to the translation provided.

Ljungbo does not indicate the use of acid formers or additives that facilitate faster curing. However, Nürnberger et al. teach the use of carbon dioxide, an acid gas, to harden molded mixtures of wood fibers and water glass (p 9 ¶ 3 - p 10 ln 2, p 11 ln 1-3). Therefore, it would have been obvious to one of ordinary skill in the art to add to the water glass taught by Ljungbo, Gäth et al. and Moyes et al. a substance to form carbon dioxide or another acid gas because Nürnberger et al. teach using carbon dioxide as a hardener. *Alternatively*, it would have been obvious to one of ordinary skill in the art to combine the use of carbon dioxide taught by Nürnberger et al. with the steps taught by Ljungbo to achieve the predictable result of increased hardness with a reasonable expectation of success.

Response to Arguments

7. Applicant's arguments filed August 13, 2008 have been fully considered but they are not persuasive.

Applicant argues that the references do not teach all the active steps recited in method claims 1 and 3. In response to Applicant's argument, for each step recited by the claims, the references in combination either teach the step itself or provide a rationale for including the step.

Applicant argues Ljungbo does not teach adding the water glass during the cooking process or during transportation to a refiner. In response to Applicant's argument, since Ljungbo teaches adding the water glass, it would have been obvious to one of ordinary skill in the art to add the water glass at any stage in the process. Unless

Art Unit: 1791

it produces unexpected results, the order of the steps in a method and the order in which ingredients are added does not impart patentable distinction to an invention. In re Gibson, 39 F.2d 975, 5 USPQ 230 (CCPA 1930).

Applicant argues that Gäth et al. do not teach a dry process and does not describe water glass. In response to Applicant's argument, no single teaching reference is required to teach or suggest every feature of the claim. Each teaching reference is invoked because it teaches or suggests specifically those features for which it is cited. The other features are taught or suggested either by Ljungbo or by the other teaching references as delineated in the rejection.

Applicant argues that Ljungbo is silent about the mixing temperature and that neither Gäth et al., Moyes et al. nor Nürnberger make up for Ljungbo's silence. In response to Applicant's argument, Gäth et al. suggest mixing and curing at the claimed temperatures by establishing these as result-effective parameters and teaching temperatures within the ranges recited by the claim. Regarding Moyes et al. and Nürnberger, no single teaching reference is required to teach or suggest every feature of the claim. Each teaching reference is invoked because it teaches or suggests specifically those features for which it is cited. The other features are taught or suggested either by Ljungbo or by the other teaching references as delineated in the rejection.

Applicant argues that the "suggestion that temperatures described in Gath could be used is not meritorious" because Gäth et al. teach a wet method. In response to Applicant's argument, since Applicant has not clearly distinguished dry or wet methods,

Art Unit: 1791

this reasoning cannot be used. Furthermore, even if there were a clear distinction between dry and wet methods, because Ljungbo and Gäth et al. are in the same field of endeavor, so it would have been obvious to one of ordinary skill in the art to import conditions from Gäth et al.'s method into Ljungbo's.

Applicant argues that Ljungbo and Gäth et al. do teach the claimed compression conditions and that Moyes et al. cannot be relied upon because Moyes does not teach other limitations of the claim. In response to Applicant's argument, no single teaching reference is required to teach or suggest every feature of the claim. Each teaching reference is invoked because it teaches or suggests specifically those features for which it is cited. The other features are taught or suggested either by Ljungbo or by the other teaching references as delineated in the rejection.

Applicant argues finally that Nürnberger does not disclose the mixing temperature, the density, curing at 80 °C, using an air or vapor stream or feeding water glass into directly into the cooking process. In response to Applicant's arguments, Ljungbo is the primary reference. Gäth et al., Moyes et al. and Nürnberger are teaching references. No single teaching reference is required to teach or suggest every feature of claim 1. Each teaching reference is invoked because it teaches or suggests specifically those features for which it is cited. The other features are taught or suggested either by Ljungbo or by the other teaching references as delineated in the rejection.

Art Unit: 1791

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Magali P. Théodore whose telephone number is (571) 270-3960. The examiner can normally be reached on Monday through Friday 9:30 a.m. to 6:00 p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina A. Johnson can be reached on (571) 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Magali P. Théodore/
Examiner, Art Unit 1791

/Christina Johnson/
Supervisory Patent Examiner, Art Unit 1791